

## 0.a. Goal

Goal 6: Ensure availability and sustainable management of water and sanitation for all

## 0.b. Target

Target 6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

## 0.c. Indicator

Indicator 6.2.1: Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water

## 0.d. Series

Metadata description refers to 6.2.1.a Proportion of population using safely managed sanitation services. Separate metadata description available for 6.2.1.b Proportion of population with handwashing facilities with soap and water available at home.

## 0.e. Metadata update

2021-12-20

## 0.f. Related indicators

All targets under Goal 6, as well as targets 1.2, 1.4, 2.2, 3.2, 3.8, 3.9, 4a, 5.4 and 11.1

## 0.g. International organisations(s) responsible for global monitoring

World Health Organization (WHO)

United Nations Children's Fund (UNICEF)

## 1.a. Organisation

World Health Organization (WHO)

United Nations Children's Fund (UNICEF)

## 2.a. Definition and concepts

### Definition:

The proportion of the population using safely managed sanitation services is defined as the proportion of the population using an improved sanitation facility which is not shared with other households and where excreta are safely disposed of in situ or removed and treated off-site. 'Improved' sanitation facilities are those designed to hygienically separate human excreta from human contact. These include wet sanitation technologies such as flush and pour flush toilets connected to sewers, septic tanks or pit latrines, and dry sanitation technologies such as dry pit latrines with slabs, ventilated improved pit latrines and composting toilets.

### Concepts:

An 'improved sanitation facility' is defined as one designed to hygienically separate human excreta from human contact. Improved sanitation facilities include wet sanitation technologies such as flush or pour flush toilets connected to sewer systems, septic tanks or pit latrines; and dry sanitation technologies such as dry pit latrines with slabs (constructed from materials that are durable and easy to clean), ventilated improved pit (VIP) latrines, pit latrines with a slab, composting toilets and container based sanitation. If a household uses a flush or pour flush toilet but does not know where it is flushed to, the sanitation facility is considered to be improved since the household may not be aware about whether it flushes to a sewer, septic tank or pit latrine.

'Unimproved sanitation facilities' include flush or pour flush toilets connected to open drains; pit latrines without slabs; open pits; buckets, pans, 'trays' or other unsealed containers; hanging toilets/latrines; defecation in the bush or field or ditch and defecation into surface water (drainage channels, beaches, rivers, streams or the sea). If a household uses a flush or pour flush toilet and survey respondents report that it is not flushed to sewer systems, septic tanks or pit latrines but elsewhere, the sanitation facility is considered to be unimproved.

Improved sanitation refers only to the type of facility used, irrespective of whether the facilities are shared. Public toilets, as well as privately owned sanitation facilities which are shared by two or more families, are classified as 'shared facilities'. Use of improved sanitation facilities which are not shared is defined as a 'basic sanitation service', while use of improved sanitation facilities which are shared is defined as a 'limited

sanitation service'. 'Basic sanitation services' may also be counted as 'safely managed sanitation services', but additional information is required about the management of excreta.

For monitoring of safely managed sanitation services, excreta from different types of sanitation facilities are tracked through stages of the 'sanitation management chain': containment, emptying, transport, treatment, and reuse or final disposal. These stages are followed separately for excreta flushed into sewer networks, and for excreta stored in on-site containers such as septic tanks and pit latrines.

Excreta from on-site storage containers (pit latrines and septic tanks) can be treated and disposed of off-site, when faecal sludge is emptied from containers and delivered to treatment plants designed to receive faecal sludge. Excreta flushed into sewer networks can also be treated off-site, if the excreta reaches treatment plants and receives a minimum level of treatment.

For the purposes of SDG monitoring, treatment of wastewater and faecal sludge is assessed based on the treatment plant design technology, using categories defined by the System of Environmental-Economic Accounting (SEEA) and the International Recommendations for Water Statistics and following a ladder approach (primary, secondary and tertiary treatment). Wastewater and faecal sludge receiving secondary or higher levels of treatment are considered 'safely managed'. Primary treatment is not considered safely managed, unless the effluent is discharged in a way that precludes further human contact (e.g. through a long ocean outfall). If data are available for conventional classes (primary, secondary, tertiary, advanced) as well as for ambiguous categories (e.g. "other"), ambiguous categories are generally not considered as safely managed. Where treatment classes are not specified (e.g. "treated") the JMP assumes at least secondary treatment but seeks clarification during country consultations. Treatment of excreta in faecal sludge treatment plants is classified as safely managed if both the liquid and solid fractions are treated.

Excreta stored in on-site storage containers can be safely treated and disposed of on-site ('safe disposal in situ') if pit latrines and septic tanks are not emptied and excreta are contained (remain isolated from human contact) such that solids degrade within the container through physical and biological processes, and liquid effluent connects to an infiltration system such as a soakaway pit or leachfield. Faecal sludge emptied from septic tanks and pit latrines and buried on-site in a covered pit is also counted as safely disposed of in situ.

For detailed guidance on safe sanitation, please refer to the most recent version of the WHO Guidelines on Sanitation and Health:

<https://www.who.int/teams/environment-climate-change-and-health/water-sanitation-and-health/sanitation-safety>.

## 2.b. Unit of measure

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Proportion of population

## 2.c. Classifications

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WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene has established international standards for classification of sanitation facilities and service levels to benchmark and compare progress across countries (see [washdata.org](http://washdata.org)).

## 3.a. Data sources

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Data sources included in the JMP database are:

- Censuses, which in principle collect basic data from all people living within a country and led by national statistical offices.
- Household surveys, which collect data from a subset of households. These may target national, rural, or urban populations, or more limited project or sub-national areas. An appropriate sample design is necessary for survey results to be representative, and surveys are often led by or reviewed and approved by national statistical organizations.
- Administrative data, which may consist of information collected by government or non-government entities involved in the delivery or oversight of services. Examples include water and sanitation inventories and databases, and reports of regulators.
- Other datasets may be available such as compilations by international or regional initiatives (e.g. Eurostat), studies conducted by research institutes, or technical advice received during country consultations.

Access to water, sanitation and hygiene are considered core socio-economic and health indicators, as well as key determinants of child survival, maternal, and children's health, family wellbeing, and economic productivity. Drinking water and sanitation facilities are also used in constructing wealth quintiles used by many integrated household surveys to analyse inequalities between rich and poor. Access to drinking water, sanitation and hygiene is therefore core indicators for many household surveys and censuses. In high-income countries where household surveys or censuses do not collect detailed information on types of facilities used by households, the JMP relies on administrative records.

The information about the type of sanitation facilities and whether they are shared or not by other households are mostly collected through censuses and household surveys. Data on containment, emptying, transport, treatment, and reuse or final disposal of excreta may come either from population-based data sources (household surveys and censuses), or from administrative records (e.g. data from ministries, regulators). Data on off-site treatment of excreta and wastewater cannot be collected through household surveys. Data on management of wastewater in sewer systems are normally available from administrative sources such as utilities and regulators. In contrast, some data on management of on-site sanitation systems may come from households (e.g. reported emptying of septic tanks and latrine pits) while some may come from service providers (desludging companies, treatment plant operators). Frequently data are available from one but not the other of these types of sources. If data are available for the sanitation type which is used by the majority of the population (the 'dominant sanitation type'), then an assumption is applied to the non-dominant sanitation type in order to make an estimate for safely managed sanitation services.

Some datasets available to the JMP are not representative of national, rural or urban populations, or may be representative of only a subset of these populations (e.g. the population using sewer connections). The JMP enters datasets into the global database when they represent at least 20% of the national, urban or rural populations. However, datasets representing less than 80% of the relevant population, or which are considered unreliable or inconsistent with other datasets covering similar populations, are not used in the production of estimates (see section 2.6, Data Acceptance in JMP Methodology: 2017 update and SDG baselines).

In some cases, a dataset can be used for one or more but not all indicators, because of variable data availability and quality. For example, a household survey might yield reliable data on “improved sanitation” but unreliable data distinguishing sewer connections from on-site sanitation systems, because of ambiguous question wording or inadequate training of survey teams.

The population data used by JMP, including the proportion of the population living in urban and rural areas, are those established by the UN Population Division (UN DESA World Population Prospects: <https://population.un.org/wpp/>).

### 3.b. Data collection method

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The data search is largely done by systematically visiting the websites of national statistical offices, and key sector institutions such as ministries of water and sanitation, regulators of drinking water and sanitation services, etc. Other regional and global databases are also reviewed for new datasets. UNICEF and WHO regional and country offices provides support to identify newly available household surveys, censuses and administrative datasets.

Before publishing, all JMP estimates undergo rigorous country consultations facilitated by WHO and UNICEF country offices. Often these consultations give rise to in-country visits or virtual meetings about data on drinking water, sanitation and hygiene services and the monitoring systems that collect these data.

### 3.c. Data collection calendar

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The JMP begins its biennial data collection cycle in October of even years and publishes estimates during the following year.

### 3.d. Data release calendar

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The SDG Progress Report and relevant data are published every two years since the publication of the baseline report in 2017, usually between March and July of odd years.

### 3.e. Data providers

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National statistics offices; ministries of water, sanitation, health, environment; regulators of sanitation service providers.

### 3.f. Data compilers

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WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP)

### 3.g. Institutional mandate

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The WHO/UNICEF JMP was established in 1990 to monitor global progress on drinking water, sanitation and hygiene (see [washdata.org](http://washdata.org)).

## 4.a. Rationale

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Access to safe sanitation and hygiene services is essential for good health, welfare and productivity and is widely recognized as a human right. Unsafe management of human excreta and poor sanitation practices are closely associated with diarrhoeal diseases, which exacerbate malnutrition and remain a major public health concern and a leading global cause of child deaths, as well as parasitic infections such as soil transmitted helminths (worms) and a range of other neglected tropical diseases. While access to a hygienic toilet facility is essential for reducing the transmission of pathogens, it is equally important to ensure safe management, treatment and disposal of the excreta produced. Sharing of sanitation facilities is also an important consideration given the negative impacts on dignity, privacy and personal safety. Lack of access to suitable sanitation and hygiene facilities is a major cause of risks and anxiety, especially for women and girls. For all these reasons, access to sanitation and hygiene services that prevent disease, provide privacy and ensure dignity has been recognized as a basic human right. The SDG target 6.2 relating to sanitation and hygiene aim to achieve this right through universal access to safely managed services.

The WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) uses a simple improved/unimproved facility type classification that has been refined over time. ‘Improved’ sanitation facilities are those designed to hygienically separate excreta from human contact, and this metric was used beginning in 2000 to track progress towards MDG target 7c. International consultations since 2011 have established consensus on the need to build on and address the shortcomings of this indicator; specifically, to address normative criteria of the human right to water and sanitation (UN General Assembly Resolution A/RES/64/292) and concluded that global monitoring should go beyond the basic level of access and consider safe management of faecal wastes. As a result, the SDG indicator 6.2.1.a is designed to address safe management of sanitation services along the sanitation chain, including containment, emptying, treatment and disposal of the wastes. In other words, the indicator combines information on whether households use improved and private (not shared) toilets and safe management of the faecal waste deposited in those toilets.

### 4.b. Comment and limitations

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Data on emptying and disposal of waste from on-site containers and the treatment of wastewater from sewer connections are increasingly available through a combination of household surveys and administrative sources including regulators, but definitions have yet to be fully

standardized.

The information available about wastewater transported to treatment may not always provide a complete picture. Not all excreta from toilet facilities conveyed in sewers (sewage) or emptied from pit latrines and septic tanks (faecal sludge) reaches a treatment plant. For instance, a portion may leak from the sewer itself or, due to broken pumping installations, be discharged directly to the environment. Similarly, a portion of the faecal sludge emptied from containers may be discharged into open drains, to open ground or water bodies, rather than being transported to a treatment plant. And finally, even once the excreta reaches a treatment plant a portion may remain untreated due to dysfunctional treatment equipment or inadequate treatment capacity, and be discharged to the environment. Data on the proportion of sewage and faecal sludge which is lost in transportation are rare.

## 4.c. Method of computation

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The production of estimates follows a consistent series of steps, which are explained in this and following sections:

1. Identification of appropriate national datasets
2. Extraction of data from national datasets into harmonized tables of data inputs
3. Use of the data inputs to model country estimates
4. Consultation with countries to review the estimates
5. Aggregation of country estimates to create regional and global estimates

The JMP compiles national data on sanitation from a wide range of different data sources. Household surveys and censuses provide data on use of types of basic sanitation facilities, while information on emptying and disposal of waste from on-site facilities and the treatment of wastewater from sewer connections are increasingly available through a combination of household surveys and administrative sources including regulators.

The JMP uses original microdata to produce its own tabulations by using populations weights (or household weights multiplied by de jure household size), where possible. However, in many cases microdata are not readily accessible so relevant data are transcribed from reports available in various formats (PDFs, Word files, Excel spreadsheets, etc...) if data are tabulated for the proportion of the population, or household/dwelling. National data from each country, area, or territory are recorded in the JMP country files, with water, sanitation, and hygiene data recorded on separate sheets. Country files can be downloaded from the JMP website: <https://washdata.org/data/downloads>.

The percentage of the population using safely managed sanitation services is calculated by combining data on the proportion of the population using different types of basic sanitation facilities with estimates of the proportion of faecal waste which is safely disposed in situ or treated off-site.

The JMP estimates the proportion of population using improved sanitation by fitting a linear regression model to all available and validated data points within the reference period, starting from the year 2000.

In some countries data on the proportion of the population connected to sewer networks or septic tanks are only available at the national level while data on the population using improved sanitation is available at rural and urban areas. In these cases a weighted average is used for the national estimate of improved (not shared) sanitation and this is split into sewer, septic and improved latrines and other. When data are available for rural and urban areas, national estimates are generated as weighted averages of the separate estimates for those areas, using population data from the most recent report of the United Nations Population Division.

For more details on JMP rules and methods on how data on the type of sanitation facility used and the disposal and treatment of excreta are combined to compute the safely managed sanitation services indicator, please refer to recent JMP progress reports and “JMP Methodology: 2017 update and SDG baselines”: <https://washdata.org/report/jmp-methodology-2017-update>

## 4.d. Validation

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Every two years the JMP updates its global databases to incorporate the latest available national data for the global SDG indicators. National authorities are consulted on the estimates generated from national data sources through a country consultation process facilitated by WHO and UNICEF country offices. The country consultation aims to engage national statistical offices and other relevant national stakeholders to review the draft estimates and provide technical feedback to the JMP team.

The purpose of the consultation is not to compare JMP and national estimates of WASH coverage but rather to review the completeness or correctness of the datasets in the JMP country file and to verify the interpretation of national data in the JMP estimates. The JMP provides detailed guidance to facilitate country consultation on the estimates contained in JMP country files. The consultation focusses on three main questions:

1. Is the country file missing any relevant national sources of data that would allow for better estimates?
2. Are the data sources listed considered reliable and suitable for use as official national statistics?
3. Is the JMP interpretation and classification of the data extracted from national sources accurate and appropriate?

The JMP estimates are circulated for a 2 month period of consultation with national authorities starting in the fourth quarter of the year prior to publication (<https://washdata.org/how-we-work/jmp-country-consultation>).

## 4.e. Adjustments

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See method of computation.

## 4.f. Treatment of missing values (i) at country level and (ii) at regional level

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- **At country level**

The JMP method uses a simple regression model to generate time series estimates for all years including for years without data points. The JMP then shares all its estimates using its country consultation mechanism to get consensus from countries before publishing its estimates.

- **At regional and global levels**

Regional and global estimates for safely managed sanitation services are calculated if there are (non-imputed) data on the management of the dominant form of improved sanitation (sewer connections or on-site systems) for at least 30% of the relevant population (i.e. the population using sewer connections or on-site improved sanitation systems) within the region. In order to produce estimates for regional or global levels, imputed estimates are produced for countries lacking data. Imputed country estimates are not published and only used for aggregation.

## 4.g. Regional aggregations

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For safely managed sanitation services, the regional population using sewer connections is used to weight estimates of the proportion of wastewater treated, while the population using improved on-site facilities is used to weight estimates of the proportion of the population with excreta disposed in situ. Where data coverage for the nondominant form of sanitation is below 30%, estimates are based only on the dominant form of sanitation.

Regional and global estimates of the population using safely managed services are then calculated by separately summing the populations with on-site and sewerage safely managed services. Where data coverage for the relevant population is above 30% in both rural and urban areas, a weighted average is used to produce total regional and global estimates.

These estimates are calculated separately for urban and rural areas and, where possible, a weighted average is made of rural and urban populations to produce total estimates for the region or world.

For more details on JMP rules and methods: JMP Methodology: 2017 update and SDG baselines:

<https://washdata.org/report/jmp-methodology-2017-update>

## 4.h. Methods and guidance available to countries for the compilation of the data at the national level

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The JMP has published guidance on core questions and indicators for monitoring WASH in households, schools and health care facilities (see <https://washdata.org/monitoring/methods/core-questions>) and provides technical support through WHO and UNICEF regional and country offices to strengthen national monitoring of SDG indicators relating to drinking water, sanitation and hygiene.

## 4.i. Quality management

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The JMP has been instrumental in developing global norms to benchmark progress on drinking water, sanitation and hygiene, and has produced regular updates on country, regional, and global trends. The JMP regularly convenes expert task forces to provide technical advice on specific issues and methodological challenges related to WASH monitoring. WHO and UNICEF have also established a Strategic Advisory Group to provide independent advice on the continued development of the JMP as a trusted custodian of global WASH data (see <https://washdata.org/how-we-work/about-jmp>).

## 4.j. Quality assurance

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National statistical offices are primarily responsible for assuring the quality of national data sources. A key objective of JMP country consultations is to establish whether data sources are considered reliable and suitable for use as official national statistics. The JMP has established criteria for acceptance of national data sources based on representativeness, quality and comparability.

## 4.k. Quality assessment

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See quality assurance.

## 5. Data availability and disaggregation

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### Data availability:

As of 1 July 2020, national estimates could be produced for 120 countries, areas, and territories, including 115 UN member states, and covering 81% of the global population. Estimates were available for rural areas in countries representing 73% of the global rural population, and for urban areas in countries representing 75% of the global urban population.

### Time series:

Time series data are available for the basic sanitation level of service since 2000. These serve as the foundation for the safely managed sanitation service indicator. Some elements of safe management (e.g. wastewater treatment) were not collected during the MDG period (from 2000 to 2015)

and for some countries and regions trend analysis is not possible for all years from 2000 to 2020.

### Disaggregation:

Disaggregation by geographic location (urban/rural, sub-national regions, etc.) and by socioeconomic characteristics (wealth, education, ethnicity, etc.) is possible in a growing number of countries. Sanitation services are disaggregated by service level (i.e. no services/open defecation, unimproved, limited, basic, and safely managed services). Disaggregated data are more widely available for basic and lower levels of service than for safely managed services.

Disaggregation by individual characteristics (age, sex, disability, etc.) may also be made where data permit. Many of the datasets used for producing estimates are household surveys and censuses which collect information on sanitation at the household level. Such data cannot be disaggregated to provide information on intra-household variability, e.g. differential use of services by gender, age, or disability. The JMP seeks to highlight individual datasets which do allow assessment of intra-household variability, but these are not numerous enough to integrate into the main indicators estimated in JMP reports.

## 6. Comparability/deviation from international standards

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### Sources of discrepancies:

JMP estimates are based on national sources of data approved as official statistics. Differences between global and national figures arise due to differences in indicator definitions and methods used in calculating national coverage estimates. In some cases national estimates are based on the most recent data point rather than from regression on all data points as done by the JMP. In some cases national estimates draw on administrative sector data rather than the nationally representative surveys and censuses used by the JMP. In order to generate national estimates, JMP uses data that are representative of urban and rural populations and UN population estimates and projections (UN DESA World Population Prospects: <https://population.un.org/wpp/>; World Urbanization Projects: <https://population.un.org/wup/>) which may differ from national population estimates.

## 7. References and Documentation

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JMP Website: <https://www.washdata.org/>

JMP Data: <https://washdata.org/data>

JMP Reports: <https://washdata.org/reports>

JMP Methods: <https://washdata.org/monitoring/methods>

JMP Methodology: 2017 update and SDG baselines

<https://washdata.org/report/jmp-methodology-2017-update>

JMP Core questions on water, sanitation and hygiene for household surveys:

Available in English (EN), Spanish (ES), French (FR) and Russian (RU):

EN: <https://washdata.org/report/jmp-2018-core-questions-household-surveys> ES: <https://washdata.org/report/jmp-2018-core-questions-household-surveys-es>

FR: <https://washdata.org/report/jmp-2018-core-questions-household-surveys-fr>

RU: <https://washdata.org/report/jmp-2018-core-questions-household-surveys-ru>

JMP Report: Progress on household drinking water, sanitation and hygiene 2000-2017: Special focus on inequalities

Available in English (EN), Spanish (ES), French (FR), Russian (RU) and Arabic (AR):

EN: <https://washdata.org/report/jmp-2019-wash-households>

ES: <https://washdata.org/report/jmp-2019-wash-households-es>

FR: <https://washdata.org/report/jmp-2019-wash-households-fr>

RU: <https://washdata.org/report/jmp-2019-wash-households-ru>

AR: <https://washdata.org/report/jmp-2019-wash-households-ar1>

WHO Guidelines on sanitation and health. Geneva: World Health Organization; 2018. Licence: CC BY-NC-SA 3.0 IGO. Available in EN, ES, FR, RU and AR:

[https://www.who.int/water\\_sanitation\\_health/publications/guidelines-on-sanitation-and-health/en/](https://www.who.int/water_sanitation_health/publications/guidelines-on-sanitation-and-health/en/)

WHO Water, sanitation and hygiene for accelerating and sustaining progress on Neglected Tropical Diseases. A Global Strategy 2015–2020, WHO Press, Geneva, 2015.

[http://apps.who.int/iris/bitstream/handle/10665/182735/WHO\\_FWC\\_WSH\\_15.12\\_eng.pdf;jsessionid=7F7C38216E04E69E7908AB6E8B63318F?sequence=1](http://apps.who.int/iris/bitstream/handle/10665/182735/WHO_FWC_WSH_15.12_eng.pdf;jsessionid=7F7C38216E04E69E7908AB6E8B63318F?sequence=1)

UN General Assembly Resolution A/RES/64/292 for the human right to water and sanitation:

[https://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/64/292](https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/64/292)

UN General Assembly Resolution A/RES/70/169 for the human rights to safe drinking water and sanitation:

[https://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/169](https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/169)

The Human Right to Water and Sanitation Milestones:

[https://www.un.org/waterforlifedecade/pdf/human\\_right\\_to\\_water\\_and\\_sanitation\\_milestones.pdf](https://www.un.org/waterforlifedecade/pdf/human_right_to_water_and_sanitation_milestones.pdf)

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